Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1.   (Currently Amended) A marketing decision support system <u>according to claim 44 further</u> ~~for food stores, supermarkets, retail stores and store chains, for optimization of a of a selected by the store chain management merchandising figure of merit predictive function (revenue, gross profit, net profit) in product prices and promotion schedules of a plurality of remotely operated in store computer monitors, the system~~ comprising:

- a)   A historical database <u>for storing the predetermined purchasing data and the predetermined pricing factors, the predetermined purchasing data including</u> ~~connected to the said marketing decision support system that contains~~ scanner data or historical purchase data ~~in any format~~ that contains at least ~~the following fields:~~ <u>a</u> date of purchase, <u>a</u> time of purchase, <u>a</u> bar code, <u>a</u> quantity bought~~,~~ <u>and</u> <u>a</u> price at the time of purchase;

- b)   ~~A method~~ <u>means</u> for modeling and optimization of joint effects of <u>the</u> <u>predetermined purchasing data and the predetermined</u> pricing ~~and promotion~~ factors, ~~and also of additional factors:~~ <u>said predetermined pricing factors</u> <u>including one or more of</u> product brands, sales discounts, quantity discounts, promotion schedules, days of the week, pre-holiday days, post-holiday days, year seasons, <u>and</u> past sales histories~~, that may influence demands~~ of a <u>the</u> plurality of <u>non-identical</u> products ~~on sale~~;

- c)   ~~Means~~ <u>means</u> for data mining of the said historical database that performs aggregation of individual sale and promotion records into data batches corresponding to user-selected or system-determined time periods, and of extracting the contents of database fields corresponding to the said ~~influence~~ <u>predetermined pricing</u> factors;

- d)   ~~Means~~ <u>means</u> for construction of an integrated pricing and promotion regression model or of a set of integrated pricing and promotion regression models ~~suitable for capturing~~ <u>to model</u> joint effects of the plurality of said<u> predetermined</u> <u>purchasing data and said predetermined pricing</u>~~influence~~ factors including pricing

and promotion variables on the <u>product</u> demands of the plurality of <u>non-identical</u> products on sale;

e) <u>means</u> ~~An estimation procedure of said integrated pricing and promotion regression model or integrated pricing and promotion regression models~~ for simultaneous estimation <u>of said integrated pricing and promotion regression model or said set of integrated pricing and regression models</u> and for separate stepwise estimation;

f) ~~Means~~ <u>means</u> for construction of <u>the</u> predicted ~~future~~ demands for products in categories with substitute demands and with complementary demands;

g) ~~Means~~ <u>means</u> for <u>separately</u> demonstrating ~~separately the~~ effects of prices on <u>said predicted</u> product demands in <u>said</u> categories based on ~~the~~ said <u>means for</u> estimation ~~procedure~~;

h) ~~Means~~ <u>means</u> for <u>separately</u> demonstrating ~~separately the~~ effects of display times of a plurality of promotion clips running on in-store monitors on <u>said predicted</u> product demands in <u>said</u> categories based on ~~the~~ said <u>means for</u> ~~efficient~~ estimation ~~procedure~~;

i) ~~Means~~ <u>means</u> for <u>providing</u> ~~setting up and running a secondary~~ <u>said</u> database containing ~~only~~ filtered data ~~necessary~~ <u>used</u> for estimation computations, <u>the filtered data including</u> ~~i.e. only the contents of the~~ fields directly corresponding to ~~the~~ regression factors in <u>said</u> integrated pricing and promotion regression models, and storing them in a ~~form more suitable~~ <u>format</u> for ~~improved~~ reading and processing.

2.   (Canceled)

3.   (Currently Amended) A marketing decision support system according to claim 1, wherein the means for data mining includes means for determining structure and sizes of said data batches ~~in such a way as to enable~~ <u>for</u> construction of <u>said</u> integrated pricing and promotion regression models ~~for capturing the~~ <u>to model</u> effects of various promotion schedules.

4.   (Currently Amended) A marketing decision support system according to claim 1, wherein the means for data mining further includes means for detecting missing data in the said historical database, and ~~also~~ means for <u>estimation</u> ~~imputation~~ of <u>said</u> missing data, ~~i.e. replacement of missing values with valid values recalculated~~ <u>the estimation of said missing data including calculating values for said missing data</u> on the basis of the ~~remaining valid~~ <u>stored</u> data ~~and suitable~~ for construction of <u>said</u> integrated pricing and promotion regression models.

5.   (Currently Amended) A marketing decision support system according to claim 1, wherein the means for data mining further includes means for detecting <u>invalid</u> ~~"bad"~~ data, ~~i.e. the invalid data including one or more of~~ incomplete <u>data</u>, incorrectly formatted <u>data</u>, out-of-range <u>data</u>, ~~highly~~ <u>and</u> improbable data~~,~~ in ~~the~~ said historical database, and ~~also~~ means for correcting ~~and cleaning of "bad"~~ <u>said invalid</u> data ~~which includes~~ <u>including</u> completion of <u>said</u> incomplete or <u>said</u> incorrect formats, and replacement of <u>said</u> out-of-range or ~~highly~~ <u>said</u> improbable values with ~~valid~~ values recalculated on the basis of the remaining valid data.

6.   (Currently Amended) A marketing decision support system according to claim 1, wherein the means for data mining further includes means for calculating robust summary statistics related to ~~said~~ sales record batches ~~which enable~~ <u>for performance of said</u> estimation of <u>said</u> integrated pricing and promotion regression models ~~to be performed~~<u>, the estimation performed by at least one of an</u> ~~by standard non-robust statistical methods:~~ ordinary least squares method, <u>a</u> weighted least squares method, <u>and a</u> generalized least squares method.

7.   (Canceled)

8.   (Canceled)

9.   (Currently Amended) A marketing decision support system according to claim 1, wherein ~~in the means for construction of~~ <u>said</u> regression models ~~the said regression models~~ contain weights that reflect sales volumes associated with said data batches.

10.   (Currently Amended) A marketing decision support system according to claim 1, wherein ~~in the means for construction of regression models the~~ said regression models further ~~reflect breakdown of~~ <u>separate</u> the plurality of <u>non-identical</u> products on sale into product groups consisting of products with substitute demands and complementary demands.

11.   (Canceled)

12.   (Currently Amended) A marketing decision support according to claim 1, wherein the <u>means for</u> estimation ~~procedure is generating an estimation process evolving in real time in which later and better estimates are based on earlier estimates and on~~ <u>updates said estimation with</u> newly obtained sales data.

13.   (Currently Amended) A marketing decision support system according to claim 1, wherein the means for construction of <u>the</u> predicted ~~future~~ demands ~~is capable of accounting~~ <u>accounts</u> for ~~strong~~ mutual dependencies among sales of substitute and of complementary products.

14.   (Currently Amended) A marketing decision support system according to claim 1, wherein the means for ~~calculating~~ <u>demonstrating the</u> effects of prices on <u>the predicted</u> product demands provides for price optimization.

15.   (Currently Amended) A marketing decision support system according to claim 1, wherein the means for ~~calculating~~ <u>demonstrating the</u> effects of <u>the</u> display times provides for promotion optimization.

16.   (Currently Amended) A marketing decision support system according to claim 1, wherein ~~in the means for setting up and running a secondary database the~~ said ~~secondary~~ database ~~is also used for~~ ~~storing~~ <u>stores</u> newly obtained sales data in a form<u>at</u> ~~suitable~~ for reading and processing ~~thus obviating the need for time consuming and expensive process of data mining the historical master database~~.

17.   (Currently Amended) A marketing decision support system according to claim 1, wherein the marketing decision support system further comprises <u>an optimization system and a user interface,</u> ~~a system for optimization of a selected by the management merchandising figure of merit predictive function in product prices that contains the following major modules:~~

<u>the optimization system comprising:</u>

a)   <u>a</u> <u>single</u> ~~Single~~ product regular price optimization module for optimizing a selected ~~by the management figure of merit predictive function~~ <u>merchandising parameter</u> for user-selected single products under regular sales conditions;

b)   a product ~~Product~~ category regular price optimization module for optimizing a
       selected ~~by the management figure of merit predictive function~~ merchandising
       parameter for user-selected product groups under regular sales conditions;

c)   a single ~~Single~~ product clearance price optimization module for optimizing a
       selected merchandising parameter ~~by the management figure of merit predictive~~
       ~~function~~ for user-selected single products under clearance sales conditions;

d)   a product ~~Product~~ group clearance price optimization module for optimizing a
       selected merchandising parameter ~~by the management figure of merit predictive~~
       ~~function~~ for user-selected product groups under clearance sales conditions;

e)   a prediction ~~Prediction~~ error estimation module;

f)   a significance ~~Significance~~ testing module;

g)   a sensitivity ~~Sensitivity~~-assessing module;

h)   a module ~~Module~~ for constructing scenario reports that contains ~~at least the~~
       ~~following~~ information units in tabled and graphical forms, ~~Scenario~~ the
       information units including a scenario task specification, ~~All~~ all group profits, ~~All~~
       all group revenues, a ~~Group~~ group availability, an ~~Individual~~ individual group task
       specification, ~~Individual~~ individual group product pricing, ~~Individual~~ individual
       group product profits, ~~Individual~~ individual group product revenues, ~~Individual~~
       individual group product sales volumes, ~~Individual~~ and individual group product
       availability~~.~~, and

i)   ~~A~~ a confirmation facility module ~~that~~ configured to allows a ~~the~~ user to ~~always~~
       review price changes computed by the optimization system and to register ~~his~~ a
       consent to the price changes through a password-protected channel ~~of~~ between
       the user interface ~~to~~ and the system prior to any implemented price changes ~~to~~
       ~~be actually implemented~~.

       18.   (Currently Amended) A marketing decision support system according to claim
17, wherein the single product regular price optimization module comprises: a ~~A~~ selected
merchandising parameter ~~by the management figure of merit predictive function of~~ a single

product regular price; localization constraints related to ~~the~~ a current product price; range constraints related to ~~the~~ a product extreme price values as recorded in the database; and optional price range restrictions as imposed by the user ~~under the~~ according to a selected ~~by him~~ optimization scenario.

19.   (Currently Amended) A marketing decision support system according to claim 17, wherein the product ~~group~~ category regular price optimization module comprises: ~~A~~a selected merchandising parameter ~~by the management figure-of-merit predictive function~~ of product group regular prices; localization constraints related to ~~the~~ current group prices; range constraints related to ~~the~~ group extreme price values as recorded in the database; and optional price range restrictions as imposed by the user ~~under the selected by him~~ according to a selected optimization scenario.

20.   (Currently Amended) A marketing decision support system according to claim 17, wherein the single product clearance price optimization module comprises: ~~a~~A selected merchandising parameter ~~by the management figure-of-merit predictive function~~ of a single product clearance price; localization constraints related to ~~the~~ current product price; range constraints related to ~~the~~ product extreme price values as recorded in the database; and optional price range restrictions as imposed by the user ~~under the selected by him~~ according to a selected optimization scenario.

21.   (Currently Amended) A marketing decision support system according to claim 17, wherein the single product clearance price optimization module ~~also~~ computes predicted sales volumes and predicted leftover stocks.

22.   (Currently Amended) A marketing decision support system according to claim 17, wherein the product group clearance price optimization module comprises: ~~a~~A selected merchandising parameter ~~by the management figure-of-merit predictive function~~ of a mix of product group regular prices and product group clearance prices; localization constraints related to ~~the~~ current group prices; range constraints related to ~~the~~ group extreme price values as recorded in the database; optional price range restrictions as imposed by the user ~~under the selected by him~~ according to a selected optimization scenario.

23.   (Currently Amended) A marketing decision support system according to claim 17, wherein the product group clearance price optimization module ~~also~~ computes predicted sales volumes and predicted leftover stocks for all clear-out products.

24.   (Previously Presented) A marketing decision support system according to claim 17, wherein the prediction error estimation module uses resampling methods for estimation of prediction errors, standard errors and biases in predicted single product optimal prices and in predicted group optimal price vectors.

25.   (Currently Amended) A marketing decision support system according to claim 17, wherein the prediction error estimation module further uses resampling methods for estimation of prediction errors, standard errors and biases in a single product merchandising parameter ~~figure-of-merit predictive functions~~ and in a group merchandising parameter ~~figure-of-merit predictive functions~~.

26.   (Previously Presented) A marketing decision support system according to claim 17, wherein the significance-testing module uses resampling methods for testing significance of optimized price changes in predicted single product optimal prices and in predicted group optimal price vectors.

27.   (Currently Amended) A marketing decision support system according to claim 17, wherein the significance-testing module further uses resampling methods for testing significance of ~~figure-of-merit function~~ merchandising parameter changes for predicted single product optimal prices and for predicted group optimal price vectors.

28.   (Original) A marketing decision support system according to claim 17, wherein the sensitivity-assessing module comprises means for assessing sensitivity of the predicted single product price functions relative to price range restrictions.

29.   (Previously Presented) A marketing decision support system according to claim 17, wherein the sensitivity-assessing module further comprises means for assessing sensitivity of the predicted group price functions relative to price range restrictions.

30.   (Currently Amended) A marketing decision support system according to claim 17, wherein the sensitivity-assessing module further comprises means for assessing sensitivity

of a single product ~~figure-of-merit-predictive-functions~~ merchandising parameter relative to price range restrictions.

31.   (Currently Amended)   A marketing decision support system according to claim 17, wherein the sensitivity-assessing module further comprises means for assessing sensitivity of a group ~~figure-of-merit-predictive-functions~~ merchandising parameter relative to price range restrictions.

32.   (Currently Amended)   The marketing decision support system as recited in claim 1 further comprising ~~a~~ an optimization system for optimization of a selected ~~by the management merchandising figure-of-merit-predictive-function~~ merchandising parameter in promotion schedules that contains the following major modules:

a)   ~~An~~ an initial scheduling module for constructing initial promotion schedules for ~~a~~ the plurality of promotion clips running on the in-store monitors when there are no sufficient data for estimation of promotion schedule effects on the product demands;

b)   ~~A~~ a promotion schedule estimation module for estimating ~~promotion-schedule~~ effects of ~~a~~ the plurality of promotion clips running on the in-store monitors on the product demands, based on said means for ~~calculating~~ demonstrating the effects of display times of ~~a~~ the plurality of promotion clips on the product demands in groups based on ~~the~~ said means for estimation ~~procedure~~;

c)   ~~A~~ a schedule selection module for selecting a group of ~~best~~ schedules as best schedules from ~~all~~ recorded optimal schedules;

d)   ~~A~~ a locally weighted regression module for constructing locally weighted regressions for ~~the~~a selected merchandising parameter ~~by the management figure-of-merit-predictive-function~~ in ~~the~~ a vicinity of each of the best schedules;

e)   ~~A~~ a merchandising parameter module for computing ~~figure-of-merit-predictive function~~ merchandising parameter increases for all of the best schedules;

f)   ~~A~~ a local optimization module for performing local optimization of ~~the~~ said selected merchandising parameter ~~figure-of-merit-predictive-function~~ in the

vicinity of all best schedules, and ~~then~~ selecting <u>one of</u> the <u>best</u> schedule<u>s</u> with ~~the~~ <u>a</u> largest ~~predicted figure-of-merit~~ <u>merchandising parameter</u> increase;

g)   ~~A~~ <u>a</u> significance testing module that uses resampling methods for testing <u>a</u> significance of the largest ~~predicted figure-of-merit~~ <u>merchandising parameter</u> increase;

h)   ~~A~~ <u>a promotion schedule</u> module for constructing a next promotion schedule that either selects the schedule with the largest predicted ~~figure-of-merit~~ <u>merchandising parameter</u> increase if the result of ~~the~~ said significance testing was significant, or~~,~~ ~~alternatively,~~ constructs a new promotion schedule in the vicinity of the existing promotion schedules.

33.   (Currently Amended)   A marketing decision support system as recited in claim 32, wherein ~~a method for modifying~~ the ~~module for~~ local optimization <u>module</u> ~~of the figure-of-merit predictive function~~ <u>is configured to</u> allow~~s~~ ~~for incorporating~~ <u>incorporation of</u> additional user-defined constraints ~~such as the~~ <u>including a</u> number of brand item clips or ~~the~~ <u>a</u> number of clip demonstrations related to a particular product group within a given time period.

34.   (Currently Amended)   A marketing decision support system as recited in claim 32, ~~wherein~~ <u>further comprising</u> an automatic promotion control system <u>that controls</u> ~~provides~~ functioning of the <u>optimization</u> module ~~for optimization of the figure-of-merit predictive function during two time periods:~~ <u>an</u> initial period and <u>a</u> main period.

35.   (Currently Amended)   A marketing decision support system as recited in claim 34, wherein ~~in the automatic promotion control system the~~ said initial period contains a predefined finite number of working days.

36.   (Currently Amended)   A marketing decision support system as recited in claim 34, wherein ~~in the automatic promotion control system the~~ said main period contains a<u>n</u> ~~potentially infinite~~ <u>unlimited</u> number of working days.

37.   (Currently Amended)   The marketing decision support system as recited in claim 1 further comprising a ~~flexible~~ user interface containing templates for a plurality of optimization and prediction scenarios partitioned into ~~the following groups: Pricing Optimization Scenarios,~~

~~Pricing Prediction Scenarios, Promotion Scheduling Scenarios~~ pricing optimization scenarios, pricing prediction scenarios, and promotion scheduling scenarios.

38.   (Currently Amended) The marketing decision support system as recited in claim 37, wherein the user interface contains facilities ~~for the user~~ for constructing the pricing optimization scenarios ~~Pricing Optimization Scenarios~~ by entering parameter values or accepting system defaults via the following major steps: Select task – pricing, Select goal – optimization, Select figure-of-merit, i.e. revenue or profit, Select grouping mode – individual or group, Select pricing mode – regular or clearance, Select product categories, product groups, and products, Select scenario name, and Select execution mode – immediate or delayed.

39.   (Currently Amended) The marketing decision support system as recited in claim 37, wherein the user interface contains facilities ~~for the user~~ for constructing the pricing prediction scenarios ~~Pricing Prediction Scenarios~~ by entering parameter values or accepting system defaults via the following major steps: ~~Select~~ select task – pricing, ~~Select~~ select goal – forecasting, ~~Select~~ select grouping mode – individual or group, ~~Select~~ select pricing mode – regular or clearance, ~~Select~~ select product categories, product groups, and products, ~~Select~~ select scenario name, ~~Select~~and select execution mode – immediate or delayed.

40.   (Currently Amended) The marketing decision support system as recited in claim 37, wherein the user interface contains facilities ~~for the user~~ for constructing ~~Promotion Scheduling Scenarios~~ the promotion scheduling scenarios by entering various parameter values or accepting system defaults via the following major steps: ~~Select~~ select task – promotion, ~~Select~~ select the ID for each monitor from the plurality of all monitors in the store, ~~Select~~ select grouping mode – individual or group for each monitor, ~~Select~~ select a list of promotion clip IDs for each monitor, ~~Select~~ select running time boundaries for each monitor, ~~Select~~ select scenario name, ~~Select~~and select execution mode – immediate or delayed.

41.   (Currently Amended) The marketing decision support system as recited in claim 37, wherein, after computation completion, the pricing optimization scenarios ~~Pricing Optimization Scenarios~~ produce scenario reports that contain at least the following information units in tabled and graphical forms: ~~Scenario~~ scenario task specification, ~~All~~ all group profits, ~~All~~ all group revenues, ~~Group~~ group availability, ~~Individual~~ individual group task specification, ~~Individual~~ individual group product pricing, ~~Individual~~ individual group product profits,

~~Individual~~ individual group product revenues, ~~Individual~~ individual group product sales volumes, ~~Individual~~ and individual group product availability.

42.   (Currently Amended) The marketing decision support system as recited in claim 37, wherein, after computation completion, the pricing prediction scenarios ~~Pricing Prediction Scenarios~~ produce scenario reports that contain at least the following information units in tabled and graphical forms: ~~Scenario~~ scenario task specification, ~~All~~ all group forecasting terms, ~~All~~ all group profits, ~~All~~ all group revenues, ~~Group~~ group availability, ~~Individual~~ individual group task specification, ~~Individual~~ individual group product pricing, ~~Individual~~ individual group product profits, ~~Individual~~ individual group product revenues, ~~Individual~~ individual group product sales volumes, and ~~Individual~~ individual group product availability.

43.   (Currently Amended) The marketing decision support system as recited in claim 33, wherein, after computation completion, the promotion scheduling scenarios ~~Promotion Scheduling Scenarios~~ produce scenario reports that contain at least the following information units in tabled and graphical forms: ~~Scenario~~ scenario name, task specification – promotion, IDs of all monitors of the plurality of the monitors in the store, grouping mode for each monitor – individual or group, list of promotion clip IDs for each monitor, running time boundaries for each monitor, optimal running time distribution for all selected promotion clips for each monitor, ~~All~~ all group profits, ~~All~~ all group revenues, ~~Group~~ g roup availability, ~~Individual~~ individual group product pricing, ~~Individual~~ individual group product profits, ~~Individual~~ individual group product revenues, ~~Individual~~ individual group product sales volumes, and ~~Individual~~ individual group product availability.

44.   (New) A marketing decision support system for a supermarket that uses a merchandising parameter including a revenue or a profit, the marketing decision support system comprising:

a prediction module for predicting a product demand for a plurality of non-identical products in a target period using predetermined purchasing data and predetermined pricing factors for the plurality of non-identical products;

an optimization module for optimizing a price and a promotion schedule of at least one of the non-identical products for the target period, the optimization module maximizing the

merchandising parameter based on the predicted product demand for the plurality of non-identical products; and

a database for storing the predetermined purchasing data, the predetermined pricing factors, the optimized price and the optimized promotion schedule.